

1 CLAIMS:

2 What is claimed is:

3

4 1. An apparatus for managing a plurality of flows of network information, each flow  
5 being identified by a flow identifier (FID), the flows passing out of the apparatus via a  
6 plurality of output ports, each flow being stored as one or more cells, each cell being  
7 stored in a buffer, each buffer being identified by a buffer identifier (BID), the  
8 apparatus comprising:

9 a port calendar, the port calendar identifying for servicing one of a plurality of  
10 output ports;

11 a shaper, the shaper shaping a subset of the plurality of flows and outputting  
12 a plurality of FIDs, each FID output by the shaper representing a cell of a FID  
13 shaped by the shaper;

14 a scheduler that selects one of a plurality of classes, each class being a class  
15 of a plurality of flows, a plurality of such classes being associated with each output  
16 port, the scheduler selecting one of the flows in a class associated with the selected  
17 output port, the scheduler outputting an FID that identifies the one selected flow, the  
18 FID output by the scheduler representing a cell of a FID scheduled by the scheduler;  
19 and

20 a dequeue mechanism that retrieves a BID in response to receiving an FID,  
21 wherein if the shaper outputs a FID associated with the output port selected by the  
22 port calendar then the dequeue mechanism retrieves a BID associated with the FID  
23 output by the shaper, and wherein if the shaper does not output an FID associated  
24 with the selected output port and if the scheduler outputs a FID associated with the  
25 selected output port then the dequeue mechanism retrieves a BID associated with  
26 the FID output by the scheduler, wherein the port calendar, shaper, scheduler and  
27 dequeue mechanism are all part of a single integrated circuit.

28

29 2. The integrated circuit of Claim 1, wherein the apparatus is configurable so that a  
30 single flow is both shaped by the shaper and is also scheduled by the scheduler.

31

32

33